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1 is shoaling of the nutricline associated with the inshore side the nutrient supply to the surface layer. This relationship indicates that the jets do not have an inshore origin and that they do not entrain a significant amount of inshore water. These results indicate that the upwelling of the region does not occur in the jets and the jets transport relatively small amounts of nutrients into the ocean interior.

14. SURJECT TERMS Nutrients; Chlorophyll; Eddies; Jets; Coastal Transition Zone

16. PRICE CODE 20. LIMITATION OF ABSTRACT

17. SECURITY CLASSIFICATION OF REPORT

18. SECURITY CLASSIFICATION OF THIS PAGE

18. SECURITY CLASSIFICATION UF ABSTRACT

Unclassified NSN 7540-01-280-9500 Unclassified

Unclassified

Standard form 298 (Rev. 2-89) Prescribed by any fid. 234-18 298-102

Final Report for ONR N00014-87-K-0391

May 15, 1991

Project Title: Nutrient studies of the structure and consequences of seaward jets in the coastal transition zone.

Principal Investigator:

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(919)728-2111 or R.Barber/Omnet

A series of repeated surveys off northern California during 1987 and 1988 provided the platform for using nutrients, chlorophyll and phytoplankton species as tools to understand the chemical and biological consequences of the energetic jets and eddies of the Coastal Transition Zone (CTZ). Our results from 1987 and 1988 show that the spatial distribution of nutrients and phytoplankton in the California Current system is determined by mesoscale jets and eddies that recur predictably at similar locations every year. Horizontal distribution of nutrients and phytoplankton, while coherent with the advective regime, was not as predicted; strong offshore jets transport water relatively low in nutrients and phytoplankton. These observations suggest that there are processes, for example upwelling along the southern side of the jets, that supply nutrients to the surface. The early model which suggested the strong jets in the CTZ transported coastally upwelled nutrients to the oceans interior is not supported by our observations. This work advanced to our understanding of the circulation of the California Current and of the consequences the circulation by showing that strong jets of the CTZ transport water with relatively low levels of nutrients and phytoplankton and that it is strong shoaling of the nutricline associated with the inshore side of the jets which provides the nutrient supply to the surface layer. This relationship indicates that the characteristic jets do not have an inshore origin and that they do not entrain a significant amount of inshore water. Additionally these results indicate that the upwelling characteristic of the region does not occur in the jets and the jets transport relatively small amounts of nutrients into the ocean interior.

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